

REMARKS

Claims 42, 44-48, 50-55, and 57-65 are pending in this application. By this Amendment, claims 42 and 55 are amended. Support for the amendments to the claims may be found, for example, in the specification as originally filed. No new matter is added.

In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

I. Rejections Under 35 U.S.C. §§102(b) and/or 103(a)

The Office Action rejects claims 42, 44, 45, 47, 48, 50-55, and 57-65 under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,621,068 to Okamoto et al. ("Okamoto"). The Office Action also rejects claim 46 under 35 U.S.C. §103(a) over Okamoto. Because the rejections are related, they are addressed together. Applicants respectfully traverse the rejections.

The Advisory Action asserts that Applicants have argued that Okamoto fails to disclose the shape control based on the etching rate, but that Applicants have not claimed such shape control limitations. *See* Advisory Action. Without conceding the propriety of the rejections, independent claims 42 and 55 are amended to further recite: "a ratio of the first etching rate to the second etching rate is from 4:1 to 1:1, thereby controlling a shape of an edge of the laminate after etching." Okamoto fails to teach or suggest at least this limitation for at least the following reasons.

A. Okamoto fails to teach, suggest, or recognize the shape control based on the etching rate as claimed

Okamoto fails to teach, suggest, or recognize the shape control based on the etching rate as claimed. A feature of the claimed invention is that the ratio of the etching rate of each resin layer in the laminate is controlled to avoid the problem as shown below in Figure 1 of the application.

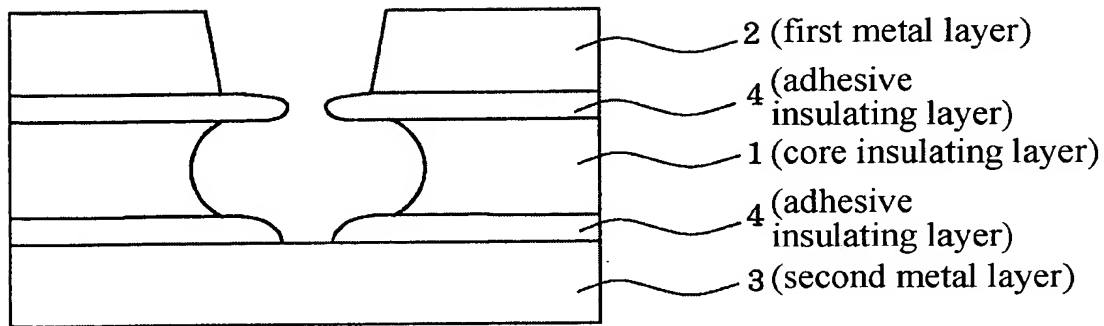


FIG. 1

Figure 1 depicts the result of a wet etching process wherein the etching rate of the adhesive insulating layer 4 is lower than that of the core insulating layer 1 is demonstrated. The resulting uneven etching shape occurs because a portion of the adhesive insulating layer 4 is not etched and remains in the form of eaves of a roof. See specification at page 6, lines 16-32. The undesirable shape of the laminate after etching causes serious and fatal problems to an electronic circuit component. These problems are particularly manifest in a wireless suspension for hard disk drives to which microvibration is applied because continuous microvibration causes peeling off (breaking away flutter) of an edge of the laminate.

Okamoto nowhere teaches or suggests, or even recognizes, this shape control based on the etching rate ratio as claimed. Okamoto nowhere teaches or suggests either the problem, or its solution. Instead, Okamoto at most teaches that "since the inventive polyimide laminate totally being composed of polyimide is compatible with alkaline etching process, perforation can easily be achieved." See Okamoto at col. 21, lines 49-67, particularly lines 49-51. Furthermore, Okamoto nowhere teaches or suggests a wet etching step using an alkali-aliphatic amine solution, and nowhere teaches any etching rates for such a solution. Okamoto thus appears to suggest that the entire polyimide laminate can be etched through, regardless of any different etching rates, and fails to teach or suggest any specific etching rate ratio.

B. General Formula (I) of Okamoto does not necessarily teach the claimed etching rate ratio

The Office Action asserts that the thermoplastic polyimide polymer layer described by General Formula (I) of Okamoto is identical to the claimed first insulating layer and that the claimed properties, specifically "a ratio of the first etching rate to the second etching rate is from 4:1 to 1:1," are therefore necessarily present. Applicants respectfully disagree with this assertion.

The etching rate of a polyimide is not necessarily defined by the chemical structure of the polyimide itself. Additional factors, such as the incurred heat history, can greatly influence the etching rate of a polyimide. In other words, the etching rate of the claimed first insulating layer cannot be automatically determined by one skilled in the art by mere knowledge of General Formula (I) of Okamoto. The properties of a polyimide film such as imidization rate and crystallinity vary greatly by the difference of heat history incurred. Therefore, even if the chemical structures of the polyimide of Okamoto and the polyimide recited in claims 42 and 55 are identical to each other, the etching rates of the laminates would not necessarily be the same. Okamoto fails to reference or teach the above described factors and, thus, one skilled in the art at the time of invention would not have known the claimed etching rate properties by the disclosure of Okamoto. In fact, as recognized by the Office Action, Okamoto fails to even disclose actual examples in which a laminate of layers are processed by a wet etching using an alkali-aliphatic amine solution. Okamoto, at most, merely discloses general information about polyimide films.

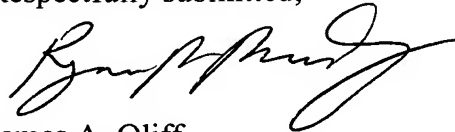
For at least the above-described reasons, Okamoto does not anticipate and would not have rendered obvious claims 42 and 55. Claims 44-48, 50-54, and 57-65, variously depend from claims 42 and 55 and, thus, also are not anticipated or rendered obvious by Okamoto. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Petition for Extension of Time
Request for Continued Examination

Date: February 19, 2009

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